

## WE CLAIM

1. A nebulizer comprising:
  - a housing comprising a cylindrically-shaped side wall portion, wherein said housing defines a chamber for holding an aerosol;
  - a cover removably mounted on said housing
  - a chamber air outlet in communication with said chamber;
  - an air inlet in communication with said chamber for allowing a supply of air to enter said chamber;
  - a liquid outlet located in said chamber;
  - a gas outlet located in said chamber adjacent to said liquid outlet; and
  - a movable diverter located in said chamber and spaced from said gas outlet and said liquid outlet by a variable height nebulizing gap, wherein said movable diverter is movable between a nebulizing position and a non-nebulizing position so as to divert pressurized gas from said gas outlet across said liquid outlet to produce said aerosol in cycles in response to a patient's breathing.
2. The nebulizer of claim 1, further comprising a diverter travel limiter positioned in said chamber, said diverter travel limiter positioned to maintain at least a minimum nebulizing gap during said patient's breathing.
3. The nebulizer of claim 2, wherein said diverter travel limiter comprises a stop pin positioned in said chamber and aligned to contact a portion of said diverter when said diverter reaches said minimum nebulizing gap.
4. The nebulizer of claim 1, further comprising a ventilator circuit removably attached to said chamber air outlet.
5. The nebulizer of claim 1, further comprising a mouthpiece removably attached with said chamber air outlet.
6. The nebulizer of claim 1, wherein said chamber air outlet comprises a hollow protrusion connected with said housing at a perpendicular angle to said cylindrically-shaped wall portion.

7. The nebulizer of claim 1, wherein said chamber air outlet comprises a hollow protrusion connected with said housing at a perpendicular angle to a longitudinal axis of said housing.

8. The nebulizer of claim 1, wherein said chamber air outlet is integrally formed with said housing.

9. The nebulizer of claim 1, further comprising an indicator mounted on said cover, wherein said indicator indicates whether said movable diverter located in said chamber is in one of said nebulizing position and said non-nebulizing position.

10. The nebulizer of claim 1, wherein said cover comprises a circular cross-section.

11. The nebulizer of claim 10, wherein said cover comprises an outer diameter greater than an outer diameter of said housing.

12. The nebulizer of claim 11, wherein a position of said diverter is manually adjustable at said cover.

13. A nebulizer comprising:  
a housing defining a chamber for holding an aerosol;  
a chamber air outlet communicating with said chamber;  
a liquid outlet located in said chamber;  
a gas outlet located in said chamber adjacent to said liquid outlet;  
a movable gas diverter comprising a shaft having a circular end opposite said gas outlet, said movable gas diverter biased by a biasing member to an initial position, wherein said movable gas diverter is movable from said initial position to a predetermined distance from said gas outlet in response to a force from an inhalation of a patient.

14. The nebulizer of claim 13, further comprising an air inlet in communication with said chamber, said air inlet configured to allow a supply of air into said chamber.

15. The nebulizer of claim 13, wherein said circular end comprises a flat surface.

16. The nebulizer of claim 15, wherein said circular end comprises a diameter of approximately 0.18 inches.

17. The nebulizer of claim 15, wherein said flat surface is oriented perpendicular to said gas outlet.

18. The nebulizer of claim 17, wherein said shaft comprises a longitudinal axis parallel to a longitudinal axis of said gas outlet and said liquid outlet, and wherein said flat surface comprises a diameter greater than a diameter of said gas outlet and said liquid outlet.

19. The nebulizer of claim 18, wherein a cover is removably mounted to said housing.

20. The nebulizer of claim 19, wherein said chamber air outlet is integrally formed with said housing.

21. The nebulizer of claim 20, wherein said chamber air outlet comprises a tubular extension oriented perpendicular to a cylindrically-shaped sidewall portion of said housing.

22. A nebulizer comprising:  
a housing comprising a lower portion configured for holding a fluid for nebulizing, a cylindrically-shaped side wall portion and an upper portion, wherein said housing defines a chamber for holding an aerosol;  
a cover removably mounted on said upper portion of said housing  
a chamber air outlet communicating with said chamber;  
an air inlet in communication with said chamber for allowing a supply of air to enter said chamber;  
a nozzle assembly positioned in said lower portion of said housing, said nozzle assembly defining a gas outlet and a liquid outlet;  
a movable diverter located in said chamber, said movable diverter movable between a nebulizing position and a non-nebulizing position in response to a force of an inhalation through said chamber air outlet.

23. The nebulizer of claim 22, wherein said movable diverter is connected with a flexible membrane.

24. The nebulizer of claim 23, wherein said flexible membrane comprises an annular shape.

25. The nebulizer of claim 23, wherein said flexible membrane is secured to said housing.

26. The nebulizer of claim 23, wherein said flexible membrane is secured to said cover.

27. The nebulizer of claim 22, wherein said nebulizing position comprises a spacing between said movable diverter and said nozzle assembly in a range of approximately 0.025 to 0.045 inches.

28. The nebulizer of claim 22, wherein said nebulizing position comprises a spacing between said movable diverter and said nozzle assembly in a range of approximately 0.030 to 0.040 inches.

29. The nebulizer of claim 22, wherein said nebulizing position comprises a spacing between said movable diverter and said nozzle assembly of approximately 0.033 inches.

30. The nebulizer of claim 22, wherein a diameter of said upper portion of said housing is greater than a diameter of said cylindrically-shaped side wall portion.